GRUNDIG

SATELLIT 3400 PROFESSIONAL

Welt-Empfänger
Global Receiver

Bedienungsanleitung
Operating Instructions
Mode d'emploi
Istruzioni per l'uso
Gebruiksaanwijzing

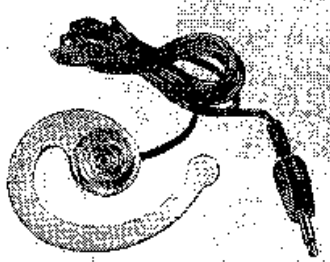
(E) (GR) (YU) (TR) (P)

GRUNDIG

Kopfhörer GDH 209
Earphone GDH 209
Ecouteur GDH 209
Cuffia GDH 209
Oortelefoon GDH 209

Zur Beachtung: Gehäuse nur mit weichem, staubbindendem Lappen reinigen. Keine scharfen Polier- oder Reinigungsmittel verwenden.

Die Geräteaufschriften befinden sich am Gehäuseboden.



Kleinhörer
Earphone
Ecouteur
Auricolare
Oortelefoon
203 B

Attention: Clean case only with a soft duster. Do not use abrasive polishes or cleaner.

The identification label is to be found on the bottom of the set.

Attention: Nettoyer le boîtier à l'aide d'un chiffon doux antipoussière, à l'exclusion de tout produit de polissage.

La plaque signalétique se trouve sur le fond de l'appareil.

Attenzione: Pulire il mobile solo con un panno leggero privo di polvere. Non usare mai alcun detersivo di qualunque tipo.

Le scritte dell'apparecchio si trovano sul fondale del mobile.

Opmerking: het apparaat dient met een zachte stoffen doek te worden schoongemaakt. Er mogen geen scherpe politoer- of schoonmaakmiddelen gebruikt worden.

De type-aanduiding bevindt zich op de onderkant van het apparaat.

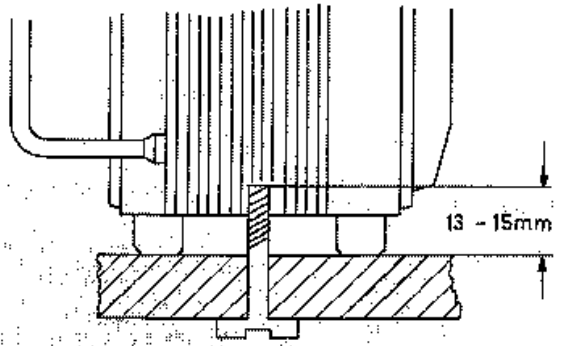


Abb. 1
fig. 1

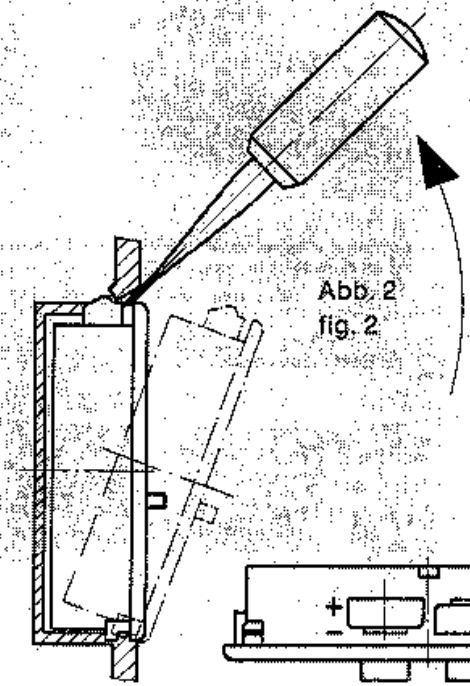


Abb. 2
fig. 2

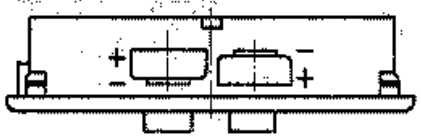


Abb. 3
fig. 3

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(GB) 15 . . . 22
(F) 23 . . . 30
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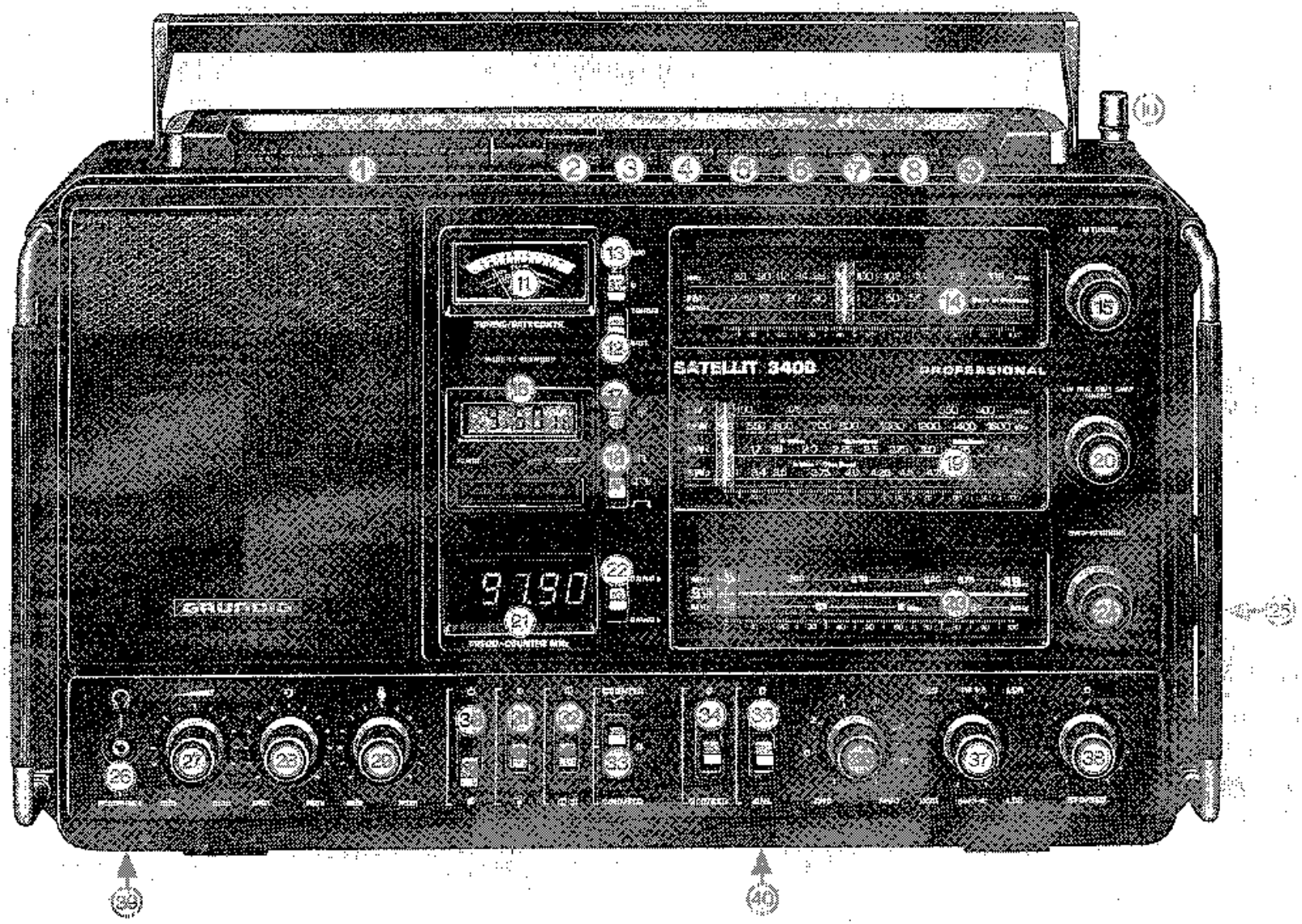
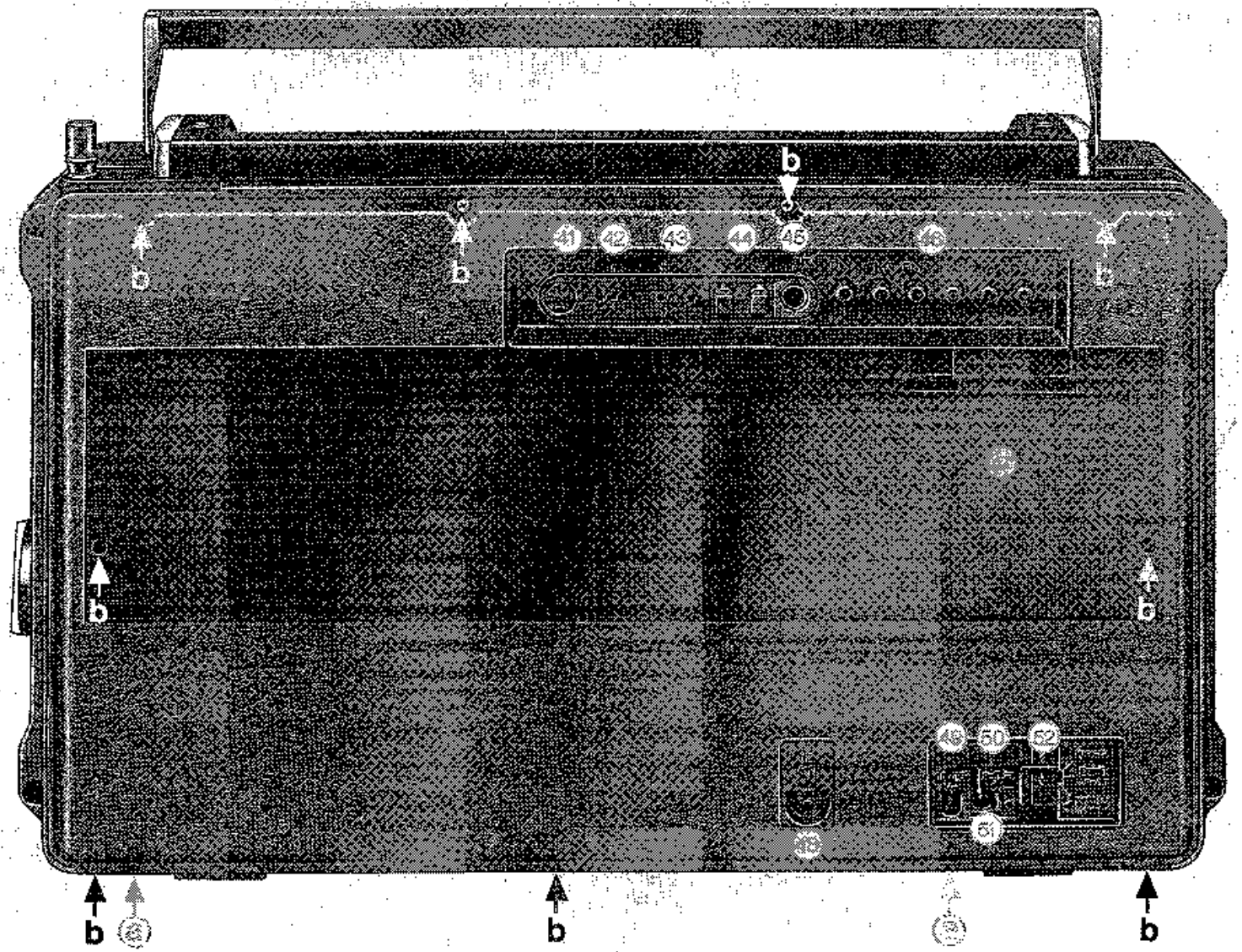
(E) 49
(GR) 50
(YU) 51
(TR) 52
(P) 53


SATELLIT 3400
PROFESSIONAL
GRUNDIG
9790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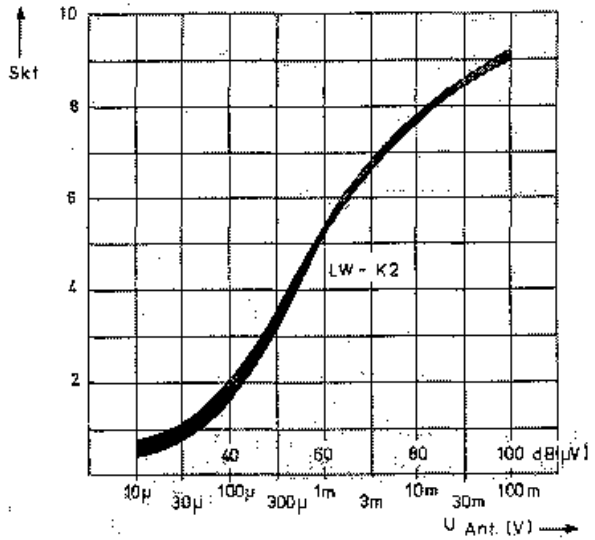
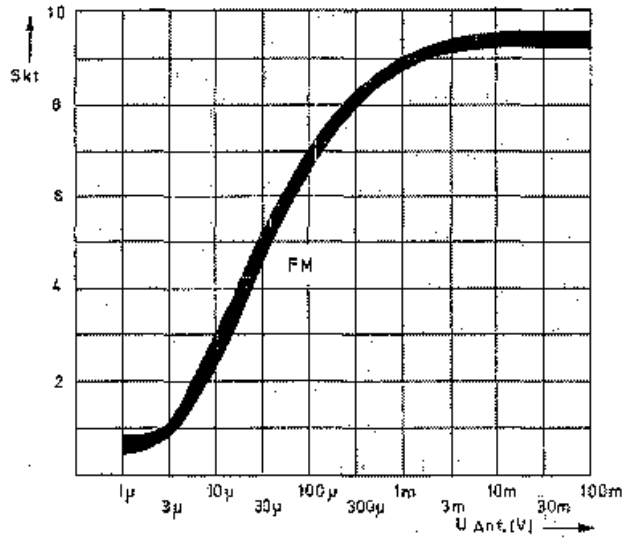
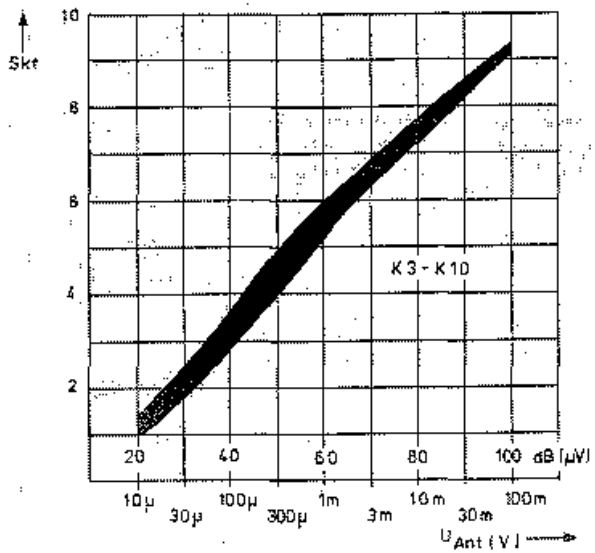






Mittelwertskurven für die Antennenspannung (bei LW, MW an den Antennenbuchsen, bei K_1 - K_{10} und UKW am Anschluß der Teleskop-Antenne).
Angaben ohne Gewähr!

Average value curves of the aerial voltage (at LW, MW on the aerial sockets, at SW_1 - SW_{10} and VHF (FM) on the connection of the telescopic aerial).
Subject to change!

Courbes de valeur moyenne pour la tension antenne (en GO et PO sur les prises antennes, en OC_1 - OC_{10} et FM sur le point de connexion de l'antenne ferrite.)
Indications sans garantie!

Caratteristiche dei valori medi della tensione d'antenna (in OL ed OM sulle prese d'antenna, in OC_1 - OC_{10} ed in FM sul collegamento dell'antenna telescopica.)
Non si garantisce per i dati riportati.

Kromme van de gemiddelde antennespanning (voor LG, MG aan de antenneaansluitbussen, voor K_1 - K_{10} en FM aan de aansluiting van de telescoopantenne).
Opgaven onder voorbehoud.

(GB)

Controls and Sockets

① **FM (VHF) Station Buttons**

② **FM (VHF) Waveband Button**

③ **Aerial Switch**
When connecting external aerials, switch off the built-in aerials by depressing this button

④ **Phono/Tape Button**

⑤ **SW_{3-10}** (Shortwave 3-10)

⑥ **SW_2** (Shortwave 2)

⑦ **SW_1** (Shortwave 1)

⑧ **MW** (Mediumwave) (AM)

⑨ **LW** (Longwave)

⑩ **Telescopic Aerial** (Length: 810/1440 mm)

⑪ **Field Strength/Battery Meter**
For field strength indication on AM/FM reception; for checking the condition of the fitted batteries or accumulator, set switch ⑫ to lower position

⑫ **Battery Check**

⑬ **AFC (Automatic Frequency Control)**

⑭ **FM-Scale**

⑮ **FM-Tuning**

⑯ **Quartz-Clock (LCD)**
with 24-hour indication

⑰ **Aerial Trimmer**
For matching the external aerial/car aerial to the tuner when using SW_{3-10}

⑱ **AM-Bandwidth**
3-step switch, coupled with switchable interference filter

⑲ **AM-Scale** (LW, MW, SW_1, SW_2)

⑳ **AM-Tuning**

㉑ **Digital Frequency-Indication for All Wavebands** (can be switched off)
With connection to mains or external power supply: continuous operation
With battery: temporary operation

㉒ **Band-Range Switch**

㉓ **Scales for SW Tuner (SW_{3-10})**

㉔ **Tuning (SW_{3-10})**

㉕ **Range Selector of SW Tuner (SW_{3-10})**

㉖ **Connecting Socket for Earphone or Headphones $\geq 4\ \Omega$**
(e.g. GRUNDIG 203 B or GDH 209)

㉗ **Volume Control**

㉘ **Bass Control**

㉙ **Treble Control**

㉚ **On/Off Switch**

㉛ **Illumination Switch**
At battery operation, the scales, instrument and clock can be illuminated by depressing and holding down this switch

㉜ **On/Off Switch for High Frequency Loudspeaker**

㉝ **Frequency-Counter Switch**
Middle position: Counter "off"
With connection to mains or external power supply, set switch to top position: "on"
With battery operation, depress and hold down the switch in bottom position: "on" (does not lock)

㉞ **On/Off Switch for SSB/BFO**

㉟ **Noise Limiter Switch (ANL)**

㊱ **Rotary Switch for MVC (Manual Gain Control);** in position "off" = AVC (automatic gain control)

㊲ **Rotary Switch USB (Upper Side Band)/ LSB (Lower Side Band)**
For SW_1 . . . SW_2 (upper lettering) and SW_3 . . . SW_{10} (lower lettering)

㊳ **SSB/BFO Fine Tuning**

㊴ **Battery Compartment**

㊵ **Identification Label**

㊶ **Phono/Tape Socket**

㊷ **FM Dipole Socket**

㊸ **Connection for External Aerial (LW, MW, SW) and Earth**

㊹ **Connecting Clamps for External Aerial (LW, MW, SW) and Earth**

㊺ **Car Aerial Socket** (for all wave bands)

㊻ **FM Tuning Knobs**
For preselecting different FM stations. To each knob corresponds one station button ①

㊼ **Mains Lead Compartment**
To open, press down the two retaining clips on the lid

㊽ **Extension Speaker Socket** (approx. 4 Ω)

㊾ **External DC Voltage Socket (10 . . . 16 V)**
Before inserting the plug the slider switch ㊿ must be pushed in direction of voltage selector (52), thereby disconnecting the batteries

㊿ **Mains/Battery Slider Switch**

(51) **Mains Socket**
Before connecting to the mains supply, check that the setting of the voltage selector (52) is correct, then push slider switch ㊿ in direction of voltage selector (52), thereby disconnecting the batteries

(52) **Voltage Selector** with Fuse Holder
Always pull mains plug before changing the voltage setting

(a) **The set can be fastened with the 2 mounted nuts**

Battery/Accumulator Operation
Important! Switch set off before inserting batteries, or accumulator.
The set is designed to operate from 9 V DC. It is powered by six 1.5 V cells which can be installed after removing the bottom cover. For this place the set backside down. Unlock the retaining clip and remove the cover. The batteries are inserted as indicated on the inside of the battery compartment ㊴. After fitting the batteries replace the compartment cover.

GRUNDIG dryfit-Accu
In place of the batteries you can also install a GRUNDIG dryfit-Accu 476. This accumulator is recharged by means of the built-in mains unit. The operating time with a full charge is approx. 40 hours on AM, and for FM operation approx. 35 hours.
When the set is switched off but connected to the mains supply or via socket ㊾ to an external DC voltage (12 - 16 V), the accumulator will be automatically charged. The charging time for a fully discharged accumulator is approximately 15 hours. The set is fitted with an automatic charging circuit which prevents an excessive charge. To ensure a long life expectancy of the accumulator, it must never be stored in a dis-charged condition.

Battery Condition Indicator
The battery meter ⑪ is located to the left of the FM scale. To ascertain the state of the fitted batteries or accumulator, press down the toggle switch ⑫ to the right of the meter with the set switched on.

The batteries are exhausted, or the accumulator must be charged when the pointer does not reach the green-coloured field of the meter. Please always test the condition of the batteries or of the accumulator at normal listening level.

Important!
When the batteries are exhausted, or if the radio is not to be used for a long period or operated from other sources, the batteries should be removed. Even "leakproof" batteries can leak and cause damage which is not covered by the guarantee.

Mains Operation
The built-in mains unit allows you to operate the set from a mains supply of 110 . . . 127 V or 220 . . . 240 V AC, 50 . . . 60 Hz. The voltage setting is indicated by the voltage selector ㊷. Before connecting to the mains supply check that the voltage selector is showing the same voltage as the local mains supply.
Upper position: 220 . . . 240 V AC,
Lower position: 110 . . . 127 V AC.
Take out mains lead from compartment ㊼. Then push slider switch ㊵ in the direction of the voltage selector ㊷ and insert the mains lead into socket ㊶. When connecting to this socket, the fitted batteries are automatically disconnected.

Note:
If your set should fail during mains operation, please check the condition of the fuses (must be carried out by a competent engineer).

For this first pull the mains plug and set the voltage selector ㊷ to the middle position.
To replace a defective fuse (Si 1) the lid of the voltage selector ㊷ must be removed in its middle position.

The three fuses Si 2, 3 and 4 can be reached after removing nine screws (b) (see fig. on page 4) and taking off the back cover. Remove the defective fuse(s) and replace it by a new one of the same rating and surge capacity(according to IEC 127 III). Note the imprint on the fuses and the directions on page 21.

Additional Information for sets used in Great Britain
The set is factory-preset to operate from a mains supply of 240 V AC. Your dealer will install your set for you and ensure that your local electricity supply is suitable and no further adjustments should be necessary. We recommend that a 13 amp 3-pin plug be used, fitted with a 2 amp fuse. The brown lead should be connected to the live pin (marked L or red or brown) and the blue lead must be connected to the neutral pin (marked N or black or blue). On no account should either of the wires be connected to the earth pin (marked E or green/yellow). If other mains plugs are used please ensure that they are protected with a 5 amp fuse. **We recommend that the set be disconnected from the mains when not in use for long periods.**

Operating from External DC Source
The set will operate from an external 10 - 16 V DC source by connecting to the switched socket ㊾. This facility is intended for use in cars or on board a ship. Use GRUNDIG cable 381 for connection to a motor car. To insert the plug set the slider switch ㊵ to the required position, the fitted batteries are automatically disconnected.

Switching On/Off
The set is switched on and off by means of the toggle switch ㉚.
Top position = off; bottom position = on.

Switching is effected in the secondary transformer circuit. When switching off, the set is not disconnected from the mains. For this, pull the mains plug.

Volume
The volume is adjusted with the control ㉗ and it should be remembered that playing the set at high volume during battery operation will reduce the battery life. Battery life is normally 100 hours on FM, and for AM operation 110 hours. You should never forget to switch the set off when it is not in use.

Tone Controls
The set is equipped with separate bass and treble controls so that you may adjust the sound quality to suit your taste. The control ㉙ varies the treble whilst the control ㉘ varies the bass. The most natural sound will be achieved when both controls are fully clockwise.

Tuning
The "Satellit 3400" is provided with three scales each with its own illumination and separate tuning knob. The top scale ⑭ covers the FM range and is tuned by the knob ⑮. The middle scale ⑲ (AM): for LW, MW, SW_1 and SW_2 tuned by knob ⑳ on the right of the scale. The lower scale ㉓ indicates the different ranges of the SW turret tuner (see paragraph on page 18).

Wave Band Selection
Depress one of the following buttons:
② FM = VHF Band
⑤ SW_{3-10} = Short Wave Band 3 - 10
⑥ SW_2 = Short Wave Band 2
⑦ SW_1 = Short Wave Band 1
⑧ MW = Medium Wave Band (AM)
⑨ LW = Long Wave Band

Scale Lamps
To illuminate the scales, the meter and the clock during battery operation press down toggle switch ㉛. During mains operation and operation from an external DC source the scale lamps , the meter and the clock lamp are permanently on.

Preselection of FM Stations
The buttons FM 1 . . . FM 6 ① permit preselection of up to six FM stations. To each station button corresponds one of the six tuning knobs ㊻ on the back of the set. For preselection proceed as follows: Switch off the AFC by setting the switch ⑬ to its lower position. The supplied VHF transmitter table or your local radio programme guide will help you to determine where the broadcasting stations may be found. Observe the digital frequency-counter ㉑ (switch on with switch ㉝) and turn each one of the knobs ㊻ until the required frequency is indicated, i.e. the required station is received. After the stations are preselected you may switch on the AFC again (switch ⑬ in the top position).

Internal Aerials
The telescopic aerial ⑩ is intended for use with both FM and SW. For FM extend only the bottom portion of the aerial (81 cm) and best results will be achieved by tilting the aerial at an angle of 45°.
For SW the telescopic aerial should be fully withdrawn (144 cm) and kept upright. When withdrawing or retracting the telescopic aerial, always be careful not to strain or bend it.
A ferrite aerial is incorporated for the MW and LW bands and as this aerial is directional the set should be rotated on its axis until the position of the best reception is obtained.

Note:
You may find that, when receiving a close-by powerful FM station, distortions occur. In this case, push the telescopic aerial slowly in until the distortions disappear.

External Aerials
Although the Satellit 3400 is equipped with a ferrite aerial for LW and MW and a telescopic aerial for FM and SW, sockets are also provided for external and car aerials. An FM dipole may be connected to socket ㊷. For LW, MW and SW_{1-10} a long wire aerial and earth can be connected to sockets ㊸ or to connecting clamps ㊹. A car aerial can be connected to the car aerial socket ㊺. When connecting external aerials, switch off the built-in aerials by depressing button ③. For optimum reception on short wave **SW_3—SW_{10} with an external aerial,** tune to a weak station and adjust **aerial trimmer** ⑰ for best possible reception (see page 19). To switch in the internal aerials again, release button ③ by depressing again.

The SW Turret Tuner

By depressing the button ⑤, a special SW turret tuner is switched into circuit. This covers eight ranges from 10 to 60 meters (5 - 30 MHz). The ranges are selected by means of the knob ㉕ on the right of the set and the corresponding SW band scale appears in the lower window ㉓. Each SW band scale covers the range selected or a bandspread broadcast band inside the selected range (top part of scale). The broadcast bands can be selected by setting the toggle switch ㉒ to its top position ("Band"). The top part of the scale is only used for coarse orientation. For precise tuning of the required frequency use the frequency counter ㉑ (switch on with switch ㉝). The bandspread broadcast bands allow convenient SW station tuning. For tuning on the 8 SW ranges as well as on the bandspread broadcast bands covered by the ranges use knob ㉔. To switch back from "Band-spread" to "normal", set the switch ㉒ to its bottom position ("Range").

SW-Bands 3 - 10

SW_3	60 - 45 m	(5.0 - 6.65 MHz)
SW_4	45.5 - 36 m	(6.6 - 8.4 MHz)
SW_5	36 - 28.5 m	(8.2 - 10.55 MHz)
SW_6	28.5 - 23 m	(10.5 - 13.2 MHz)
SW_7	23.5 - 18.5 m	(12.9 - 16.3 MHz)
SW_8	19 - 15.5 m	(15.8 - 19.8 MHz)
SW_9	16.5 - 13 m	(18.35 - 23.5 MHz)
SW_{10}	13 - 10 m	(23.4 - 30 MHz)

Bandspread SW Bands

49 m Band	(5.93 - 6.25 MHz)
41 + 40 m Band	(7.0 - 7.31 MHz)
31 m Band	(9.45 - 9.85 MHz)
25 m Band	(11.65 - 12.05 MHz)
19 m Band	(15.05 - 15.65 MHz)
16 m Band	(17.45 - 18.05 MHz)
13 + 15 m Band	(20.95 - 21.85 MHz)
11 m Band	(25.5 - 26.4 MHz)

The Built-in SSB-Unit

By setting the switch ㉞ to its bottom position ("BFO/SSB"), it is possible to make SSB transmissions or CW stations intelligible. The SSB detector incorporates a product detector with a separate oscillator stage.

SSB stations are usually transmitting only one side-band, whilst the carrier and the other side-band is suppressed. The missing carrier must therefore be added at the receiving station to make the transmission readable. The product detector is therefore used to mix the side-band frequency with the subcarrier frequency.

The SSB detector is inoperational at the beginning (switch ㉞ in top position). With switch ⑱ in its top position (narrow band width), tune in the required SSB station as good as possible. Now set rotary switch ㉟ to its manual control position (MVC). Adjust the HF amplitude with the knob ㊱ to obtain a pointer reading not above "7" on the meter ⑪. Use knob ㊲ to select the side-band, e.g. lower side-band (LSB) for 80 + 40 m band, or upper side-band (USB) for 20, 15 + 10 m band. The upper USB/LSB-lettering is only valid for SW_1 and SW_2, the lower is valid for SW_{3-10}. Set the control ㊳ to middle position. Set the toggle switch ㉞ to its bottom position and correct the main tuning of the receiver until intelligible speech is achieved. Fine tuning adjustment can be carried out with the control ㊳.

No matter, if a complete side-band spectrum or only one frequency is mixed in the product detector the SSB detector is functioning also at the reception of CW stations. At this mode of operation adjust the beat frequency (approx. 800 to 1000 Hz) with control ㊳ and select a side-band with less interferences.

When listening to regular radio-programmes on the AM band, the SSB detector should be switched off (switch ㉞ to top position and control ㊱ to position "AVC"). Otherwise interferences caused by whistling noises may be noticed.

Note: When switching the frequency counter on or off the oscillator will be slightly detuned, especially on high frequencies. This has no affect on normal radio reception, as the detuning is within the bandwidth ($\leq$ 1 kHz). On reception of SSB stations the station tuning has to be possibly slightly corrected when the counter is switched on or off.

Radio Licence
The German Federal Postal Authorities draw your attention to the fact the "General Sound and TV-Radio Licence" entitles you only to install and to operate sound, TV and radio receivers. Only radio transmissions and no other kind of transmissions may be received by means of these sets.
If – on board – transmissions are also to be received on the marine band within the wavelength 1605 and 4000 kHz it is necessary to apply for an additional licence allowing the installation and operation of a wireless receiver for marine radio service.
Licences regarding wireless receivers for marine band on ships can be obtained from the Radio Office Hamburg.
A different licence may be required for use in other countries therefore the licencing authorities – Post Office – for the country in question should be contacted for further information.

Tuning Aids

Frequency Counter
With the aid of the frequency counter ㉑ an exact tuning is possible on all ranges. The indicator can be switched on and off with the toggle switch ㉓. The indicator is off with the switch ㉓ set to centre position. With switch ㉓ in its top position the indicator is on permanently for operation with mains or external DC power supply. On battery operation and accumulator operation the switch has to be pressed down (does not lock) for short-time operation. It returns to centre (0) position to avoid unnecessary high battery consumption.

Note: Digital circuits almost always produce a strong, wide band interference spectrum which may have a considerable effect on reception. Through suitable measures interferences by the counter have been largely eliminated in the Satellit 3400 or are that small, that as a rule they may be neglected.
Nevertheless the following should be pointed out:

Longwave, ferrite aerial:
Weak wide band interferences may occur on multiplex operation.

Mediumwave, ferrite aerial:
The same as with longwave, in addition whistling interference points on harmonic waves at 320 kHz.

Shortwave SW 1 - SW 10:
Whistling interference points at 6 and 14 MHz.

FM:
At the beginning of the band (87.5 MHz) a weak, at 103 MHz a stronger interference point may be encountered.
In all cases it can easily be checked if the counter is causing the interferences by switching it off.

Indicating Meter
The field strength will be indicated on the top scale of the meter ⑪. Tune for maximum pointer deflection on the meter.

Automatic Frequency Control on FM (AFC)
For FM tuning, the Satellit is provided with an automatic frequency control (AFC). When tuning in the desired FM station, switch the AFC off (bottom position of AFC switch ⑬), tune for maximum deflection on meter and switch AFC on (top position of switch ⑬). If you are trying to tune to a weak or distant station it is easier if the AFC is left off.

AM Band Width
The switch ⑱ allows selection in three steps between wide, increased or narrow band width in the AM ranges when receiving LW, MW and SW stations. With narrow bandwidth (top switch position) the selectivity of the stations is improved (important when receiving stations close together). With switch ⑱ in its middle position the band width is increased, for improved sound quality in such cases where stronger stations are received or the narrow band width is not needed. When receiving your local station, it is recommended to select wide band width (bottom position of switch ⑱) to ensure most natural sound quality. In all three positions of the switch an interference filter is effective, it is matched to the respective band width.

Aerial Trimmer (only for SW_{3-10})
When using external aerials (e.g. car aerial) adjust the aerial trimmer ⑰ for maximum after accurately tuning in the station with the tuning control. For best results when used in the home the external aerial should be erected away from buildings etc, and the down lead should consist of low impedance coaxial cable (60 Ω). The screen of the cable should be earthed. When receiving with the internal aerial, the trimmer is ineffective.

ANL
If on AM reception irregular crackling noises occur (e.g. lightning or switching on/off electrical appliances), set the ANL (automatic-noise-limiter) switch ㉟ to its bottom position. With this, the noise spikes riding on the desired signal are clipped off. The clipping threshold is automatically matched to the respective degree of modulation. The ANL permits unstraining headphone operation. With interferences of high repetition frequency (frying noise) the ANL does not bring any improvement and is therefore not recommendable.

Record Player/Tape Recorder
You may play a record player, or record and playback using a tape recorder by connecting to socket ㊶ via a five pin DIN plug. When playing the record player, or playing back the tape recorder, the button ④ must be depressed. Please also see the operating instructions of the tape recorder.
If with mains operation humming noises occur on TA/TB reproduction, it can be reduced or eliminated by reversing the polarity of the mains plug.

Note:
1. On radio operation it is recommendable to switch off any instruments connected to the socket to prevent interferences via the amplifier socket.

2. Radio Playback via an Amplifier
The socket ㊶ can be used for connection to an amplifier for radio playback, using connector cable type 242. When playing back mainly via the amplifier set the volume control to minimum. The tone controls have no function with amplifier operation. Adjust the tone with the controls on the amplifier.

Connecting an External Loudspeaker
An extension loudspeaker (4 Ω) may be connected to socket ㊽ located in the rear of the set. The internal loudspeaker will be automatically switched off.

Earphone/Headphone
An earphone or headphone ($\geq$ 4 Ω) may be connected to the socket ㉖ located to the left of the volume control. The internal loudspeaker will be automatically switched off.

High Frequency Loudspeaker
When listening to FM or to gramophone records/tape recordings a high frequency loudspeaker may be switched into circuit by means of the toggle switch ㉜. (speaker on = bottom position, speaker off = top position). This loudspeaker will provide improved quality and presence.

Note:
To increase the stability of the set (e.g. for use on sailing boats), it can be fastened with two screws M 4. For this two nuts (a) are fitted on the left and right into the bottom of the Satellit (distance between the nuts, 350 mm). For correct fixing, the two screws must protrude 13 - 15 mm from the mounting plate (see fig. 1 on page 2).
Please ensure that there is enough space for the connecting plugs on the rear and the switching knob on the right of the set.
When using the Satellit on board ship an RS 2 T directional aerial manufactured by "Ramert" can be connected to the aerial input socket. The aerials highly directional properties will aid navigation and direction finding.

Fa. Ramert:
Kopperpahler Allee 146/148
D-2300 Kronshagen/Kiel
Tel. (04 31) 54 10 99

Operating the Satellit in a Car
Connect the car aerial to socket ㊺ at the rear. You can operate the set in a moving or stationary car, but secure it whilst driving. The car must be suppressed to prevent interference.
For power supply, normally the internal batteries are used. For frequent use in the car, however, connection to the car battery will be of advantage. To connect the set to a 12 V car battery, use a cable 381 with built-in interference suppressor. Connect this cable to socket ㊼ (10 - 16 V DC) at the rear of the set and to the cigar lighter on the dashboard of the car or to any appropriate battery connecting point. Whilst operating the set in this way the scale lamps, the meter and the clock are permanently illuminated.

Quartz-Clock
The built-in quartz clock ⑯ with LCD indication (liquid-crystal-display) is operated by its own supplied batteries. The clock can be removed for changing the batteries. For this, carefully insert a screwdriver on the top edge of the clock unit and – without twisting it – tilt it out frontward (fig. 2 on page 2). This way, marring the cabinet is avoided. Then remove the back cover. Two miniature cells SR 44 according to DIN 40 879 are used (e. g. Vartachron 521, Mallory WS 14, UCAR 303/EPX 77, ANSI WS 16, RENATA 9).
Observe correct polarity (fig. 3 on page 2).
For setting the clock use the separate instructions.

SPECIFICATION

Power Supply:
Batteries: 6 x 1.5 V cells (e.g. Varta Nr. 3020 or Daimon 251). (In Great Britain: Every Ready HP 2 or equivalent).
Accumulator: "Dryfit" PC 476
Mains: 110 - 127 V and 220 - 240 V AC 50/60 Hz with built in mains unit. **Switching on/off in transformer secondary circuit.**
External: Any 10 - 16 V DC source eg 12 V car battery via cable 381.

Fuses (to IEC 127 III):
Si 1 = T 200 mA (surge resisting)
Si 2 = T 1.25 A (surge resisting)
Si 3 = T 1.6 A (surge resisting)
Si 4 = T 400 mA (surge resisting)

Component Parts:
9 IC's, 51 transistors, 24 diodes, 12 stabilisers, 5 thyristors, 1 rectifier

Consumption (no signal):
at 9 V battery: AM approx. 40 mA
FM approx. 50 mA
at 220 V AC: 4 W
(with signal):
at 9 V battery:
AM approx. 65 mA to DIN 45 314
FM approx. 75 mA to DIN 45 314
at 220 V AC: 14 W to DIN 45 324
maximum at 240 V and full modulation: 20 W

Battery Life (to DIN 45 314):
with Varta 3020:
AM approx. 110 Hrs
FM approx. 100 Hrs
with GRUNDIG "Dryfit" accumulator:
AM approx. 40 Hrs
FM approx. 35 Hrs

Frequency Counter (Accuracy):
AM: ± 1 kHz
FM: ± 10 kHz

Function Ability:
1. Set: U_{Batt} = 4.5 - 10.2 V
2. Field strength dependent indication and frequency counter:
U_{Batt} = 7.2 - 10.2 V
(7.2 V = Dryfit mark)

Scale Lamps:
3

Meter:
1 lamp

clock:
1 lamp

Wave Bands:

FM	87.5 - 108	MHz
LW	145 - 420	kHz
MW	510 - 1620	kHz
SW_1	1.6 - 3.5	MHz (187 - 85 m)
SW_2	3.3 - 5.2	MHz (90 - 58 m)

SW Tuner (Normal):

SW_3	5.0 - 6.65	MHz	(60 - 45 m)
SW_4	6.6 - 8.4	MHz	(45.5 - 36 m)
SW_5	8.2 - 10.55	MHz	(36 - 28.5 m)
SW_6	10.5 - 13.2	MHz	(28.5 - 23 m)
SW_7	12.9 - 16.3	MHz	(23.5 - 18.5 m)
SW_8	15.8 - 19.8	MHz	(19 - 15.5 m)
SW_9	18.35 - 23.5	MHz	(16.5 - 13 m)
SW_{10}	23.4 - 30.0	MHz	(13 - 10 m)

SW Tuner (Bandspread):

SW_3	5,93 - 6.25	MHz	(49 m)
SW_4	7.0 - 7.31	MHz	(41 + 40 m)
SW_5	9.45 - 9.85	MHz	(31 m)
SW_6	11.65 - 12.05	MHz	(25 m)
SW_7	15.05 - 15.65	MHz	(19 m)
SW_8	17.45 - 18.05	MHz	(16 m)
SW_9	20.95 - 21.85	MHz	(13 + 15 m)
SW_{10}	25.5 - 26.4	MHz	(11 m)

Circuits:
FM: 13 (3 tunable)
AM (LW, MW, SW_1, SW_2): 8 + ceramic filter (3 tunable)
(SW_3 - SW_{10}): 11 + ceramic filter + quartz filter (3 tunable)

AGC:
AM: over 3 stages

Tone Control:
Separate bass and treble

Loudspeaker:
High quality Superphon unit with Hi-flux magnet and tweeter (switchable)

Output Power (according to DIN 45 324):
On battery operation 2.5 W } sinus power
On mains operation 5 W }
On mains operation 7.5 W music power

Built-in Aerials:
Ferrite for LW + MW, switchable
Telescopic for FM (81 cm) and SW (144 cm), switchable

Aerial Trimmer:
For external and car aerials on SW_{3-10}

Connecting Clamps:
For external aerial and earth

Connecting Sockets:
External aerials (FM/AM/Earth)
PU/Tape/Amplifier (to DIN 41 524)
External loudspeaker (4 Ω) (DIN 41 529)
Earphone ($\geq$ 4 Ω to DIN 45 318)
Headphone ($\geq$ 4 Ω)
External DC source (10 - 16 V)

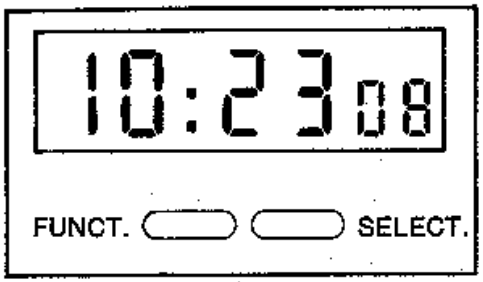
Weight:
8.9 kg (without batteries)

Dimensions:
516 x 297 x 140 mm

The right is reserved to alter specifications and operational details without prior notice.

Note!
This set should not be exposed to a temperature higher than 70° C. Please remember that this temperature can be exceeded on the rear panel shelf in a car subjected to strong sunlight. This may cause serious damage.

After fitting or changing the batteries, arbitrary numbers appear.



FUNCT. Function selection (time/date) Entry of data

SELECT. Selecting the position, which has to be set

Press the button as long (indication advances in 1/2 second rhythm), or as often, until the desired indication is reached.

X Press once

12 Indication blinks in 1/2 second rhythm

1) By actuating the "SELECT." button after the minutes have been set it is possible to start the clock **exactly to the second** (e. g. by means of radio or TV time check).

2) If the indication "time" is desired at once, then the "FUNCT." button must be pressed **4 times.**
The appearing symbols have no function in this unit.

Attention: After adjustment has been completed, the "SELECT." button must be pressed repeatedly until no sign is blinking.

Setting the clock time

FUNCT. S1	SELECT. S2	Indication	Explanation
—	—	10:25 08	Initial state: arbitrary time indication
—	X	10:25 10	Ready for setting the hours
⬭	—	22:25 35	Setting hours, clock function not interrupted
—	X	22:25 40	Ready for setting the minutes, clock function not interrupted
⬭	—	22:06 00	Setting minutes, clock function interrupted, seconds at zero
—	X	22:06 00	Setting process concluded, clock function started, Indication, "time" 1)

Setting the date (week-day, calendar day, month) (German week-day letters)

—	—	22:06 30	Initial state: "time"
X	—	MO 8 2	Indication: date
—	X	MO 8 2	Ready for setting the week-day
⬭	—	DO 8 2	Setting week-day
—	X	DO 8 2	Ready for setting the calendar day
⬭	—	DO 12 2	Setting calendar day
—	X	DO 12 2	Ready for setting the month
⬭	—	DO 12 11	Setting month
—	X	DO 12 11	Setting concluded, indication "date". Changes after approx. 30 secs. back to indication "time". 2)